

What is claimed is:

[Claim 1] 1. A method of forming a polysilicon resistor, the method comprising:

providing a substrate, the substrate comprising a dielectric layer;

forming a polysilicon layer on the dielectric layer;

doping the polysilicon layer with first type dopants and second type dopants;

removing portions of the polysilicon layer and the dielectric layer down to the surface of the substrate, the remainder of the polysilicon layer comprising at least a high resistance region and a low resistance region; and

forming a salicide layer on the portions of the polysilicon layer within the low resistance region.

[Claim 2] 2. The method of claim 1 wherein the first type dopants comprise N-type dopants and the second type dopants comprise P-type dopants.

[Claim 3] 3. The method of claim 1 wherein a dosage of the first type dopants and a dosage of the second type dopants have the same order of magnitude.

[Claim 4] 4. The method of claim 1 further comprising forming a salicide block on the portions of the polysilicon layer within the high resistance region.

[Claim 5] 5. The method of claim 1 further comprising:

forming an inter layer dielectric on the substrate, the inter layer dielectric comprising at least a contact hole connecting to the salicide layer; and

forming a conductive layer on portions of the inter layer dielectric and within the contact hole.

[Claim 6] 6. The method of claim 1 wherein the low resistance region is at the either side of the high resistance region.

[Claim 7] 7. A method of forming a high resistance region of a polysilicon resistor, the method comprising:

providing a substrate, the substrate comprising a dielectric layer;

forming a polysilicon layer on the dielectric layer; and

doping the polysilicon layer with first type dopants and second type dopants, thus forming the high resistance region on portions of the polysilicon layer.

[Claim 8] 8. The method of claim 7 wherein the first type dopants comprise N-type dopants and the second type dopants comprise P-type dopants.

[Claim 9] 9. The method of claim 7 wherein a dosage of the first type dopants and a dosage of the second type dopants have the same order of magnitude.

[Claim 10] 10. The method of claim 7 further comprising forming a salicide block on the portions of the polysilicon layer within the high resistance region.

[Claim 11] 11. The method of claim 7 further comprising forming a salicide layer on the portions of the polysilicon layer except the high resistance region, thus forming at least a low resistance region of the polysilicon resistor.

[Claim 12] 12. The method of claim 11 further comprising:

forming an inter layer dielectric on the substrate, the inter layer dielectric comprising at least a contact hole connecting to the salicide layer; and

forming a conductive layer on portions of the inter layer dielectric and within the contact hole.

[Claim 13] 13. The method of claim 11 wherein the low resistance region is at the either side of the high resistance region.